SURFACE FUNCTIONALIZATION OF FABRICS AS A METHOD FOR DEVELOPMENT OF SMART TEXTILE

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ABSTRACT

The growing need for functional textile requires development of robust and efficient techniques for enhancement and surface modification of fabrics. Our group has recently developed a simple and modular method of covalent functionalization of woven and non-woven fabrics to produce smart textiles with adjustable properties that can react to the changes in the environment such as, temperature, pH and chemical composition. The method involves two steps and is based on commercially available bi-functional molecule that serves as a linker between fabric and functional materials. While one end-group of the molecular linker undergoes covalent attachment to the surface of the fabric, the other end-group can be subsequently connected to functional materials using thiol-ene click chemistry conditions. This work will detail examples of functionalization and characterization of fabrics made from natural and synthetic fibers with different types of functional materials such as water-repellent, electro-conductive and pH-responsive ones.